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ABSTRACT

Initially available from universities and individual enthusiasts, software tools to author World Wide Web pages are maturing into very feature-rich applications and are now offered by large corporations. These applications are enabling more companies to create and maintain pages themselves on the Web or on corporate Intranets. The market continues to grow quickly as the Web matures. Looking at trends evolving amongst the products may assist purchasers to choose tools that fit their environment. This paper reviews five authoring tools that have received a great deal of media attention, awards, and endorsements. The manufacturers of these products have remained current with new HTML (Hypertext Markup Language) tag extensions and seem committed to continuing product development. The paper provides individual product reviews for: Hotdog Professional from Sausage Software; HoTMetal PRO from SoftQuad; PageMill from Adobe; FrontPage from Microsoft; and Navigator Gold from Netscape. The main trend evolving throughout HTML editors is that they are becoming WYSIWYG (what you see is what you get), which hides the HTML tags from the user. Other trends include: increasing value of the authoring software, with dropping prices and increased functionality; incorporation of programming functions; site management tools; similar basic look and functionality; context sensitive controls; larger and more memory consuming applications; and more applications are being developed for the PC platform. (SWC)

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Web page authoring tools: comparison and trends

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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Abstract: *Software tools to author World Wide Web pages have evolved rapidly over the past year. Initially available from universities and individual enthusiasts, they are maturing into very feature rich applications and are now offered by large corporations. These applications are enabling more companies to create and maintain pages themselves on the Web or on corporate Intranets. The market continues to grow quickly as the Web matures. Looking at trends evolving amongst the products may assist purchasers to choose tools that fit their environment.*

Keywords: HTML editors, Web authoring tools

1. Introduction

World Wide Web pages are composed in a language called Hypertext Markup Language or HTML. Actually, HTML is not a programming language at all. It consists of codes or *tags* which are placed in an ASCII text file. Software applications called *browsers* request these files from computers on the Web known as *Web servers*. The browser displays these text files as formatted Web pages according to HTML tags it reads. Tags instruct the browser how to highlight or align text, where to insert graphics, etc.

For example, words to be displayed in bold lettering would be written in an HTML file as such:

<B>some important words**</B>**

As the browser reads the **<B>** tag, it displays text in bold lettering until it reaches the closing tag **</B>**. The words would be displayed on a Web page like this:

some important words

Using standard ASCII text files enables the World Wide Web to support a heterogeneous population of computer platforms. Because the format is not proprietary to one type of computer, both Web servers hosting these HTML files and user computers, or *clients*, requesting Web pages may be Unix workstations, PCs, Macintoshes, etc. A browser such as Netscape Navigator or Microsoft Explorer adjusts the display for a Web page according to the type of computer and screen resolution on which it is running.

Web sites have been increasing at an exponential rate since 1993. A fast growing percentage of sites were published by companies during 1995. A survey by Matthew Gray at MIT shows that 18% of sites on the Web were commercial ones in December 1994. By January 1996, this percentage increased to 50%.[1] As companies used the Web to market their products and sell online services, the emphasis on Web page design and functionality increased. Netscape introduced HTML tag extensions to the HTML standard. Microsoft also introduced a browser and its own HTML tag extensions.

Text editors such as Notepad or SimpleText were among the few alternatives available for creating HTML files until 1995. Web page authoring tools or HTML editors began to appear from universities and individual enthusiasts. Copies were initially available to download for no charge. They looked and worked like simple word processors. Instead of typing HTML tags such as **<B>** into a text file, writers could select a tag by clicking on a button from a toolbar. Initial benefits from early HTML editors were that they provided basic editing functions and writers no longer had to refer to growing lists of tags.

Throughout 1995, these HTML editing tools grew in number and functionality. The market began to attract large corporations including Microsoft and Adobe. WYSIWYG ('what you see is what you get') interfaces appeared. Graphics editors began to be included into the applications. As Web sites grew in size and complexity, site management tools were also developed to assist authors in tracking page links and images.

It is difficult to estimate the number of applications available for authoring Web pages. A search in Yahoo yields 120 matches. This paper reviews five authoring tools that have received a great deal of media attention, awards and endorsements over the past year. Moreover, these products have remained current with new HTML tag extensions and their manufacturers seem committed to continuing product development.

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This paper identifies and discusses trends that are evolving in the development of these authoring tools. It then reviews each of the tools and producing companies individually. Because the Web is evolving so rapidly these products are also being frequently upgraded. It would be misleading to provide a feature-by-feature comparison in a paper five months before publication. Some of these products have new releases pending in the next few months. Instead, this paper focuses on the products' overall design, ease of use and market position.

(Note — A table comparing individual features and example screen shots will be prepared from current software versions available in November and distributed at the conference.)

2. Authoring tools reviewed

Five software packages were reviewed here:

- Hotdog Professional from Sausage Software;
- HoTMetaL PRO from SoftQuad;
- PageMill from Adobe;
- FrontPage from Microsoft;
- Navigator Gold from Netscape.

3. Trends

The main trend evolving throughout HTML editors is that they are becoming WYSIWYG. This style hides the HTML tags from a user. Page layout is simulated to look like it was displayed by a browser. Users typically find this an easier way to author Web pages, although experienced authors often prefer working with text based HTML files. Hotdog is the only software reviewed that is not WYSIWYG. HoTMetaL continues to display files in a text based HTML format in its latest version. However, it incorporates some WYSIWYG features. Text is shown to reflect font size and styles and images are displayed.

Their value is increasing. Prices are dropping and more functionality is being added for little, or no price increases. Most dramatically, FrontPage price dropped from £463 [2] in December 1995 to £99 and £73 for Office 95 users in June 1996 when it was released by Microsoft. This offer is available until March 1997. Overall these editors range in price from £53 to £106. Navigator Gold can be purchased for the least amount of £53 which includes the popular Navigator browser. However, the price increases up to £66 if someone also purchases a handbook and £33 more for a year's subscription to upgrades. PageMill and Hotdog cost £66. HoTMetaL version 3.0 costs £106, up from £99 for version 2.0.

Increased functionality in the products includes easy colour selection and image manipulation. Until recently, working with images was cumbersome. Different tools or software applications were required to make backgrounds transparent or change the image format to .GIF or .JPEG. For PC users, some of these tools were only available as MS-DOS routines. SoftQuad has integrated its MetalWorks graphics editor into version 3.0 of HoTMetaL. HoTMetaL, PageMill and FrontPage covert graphics to a .GIF format automatically as the image is inserted into a page. Making the background transparent is also becoming as simple as a couple of mouse clicks. Selecting colours from colour wheels or RGB palettes now replaces entering hexadecimal codes to adjust shades of red, green and blue for a colour.

Incorporating programming functions such as forms handling is being introduced. FrontPage includes a proprietary set of routines called *bots* which allow forms handling and search capabilities. HoTMetaL includes sample CGI scripts. Sausage Software offers add-on products called *Snaglets* which include Java functionality for animating images.

Site management is becoming more developed in the product offerings. FrontPage integrates a sophisticated site management tool in the product. Adobe offers similar functionality through a sister product to PageMill called SiteMill which costs £200 for registered owners of PageMill. Hotdog allows users to group files into Web projects which may be opened as a group. A report can then be run to show a listing of page links and images. Another handy feature this product provides is the ability to search-and-replace throughout multiple files.

All of the tools share a basic look and functionality. They offer the user a toolbar of buttons and pull down menus representing HTML tags. Paragraph or Normal is typically the default style that produces normal text. A user then selects a style such as Heading Size 1. All text typed until the style is changed will be displayed in a large heading size.

Context sensitive controls is another popular feature. HTML tags have a growing list of *attributes* or parameters available which allow authors more functionality to adjust the tag's display. When an author uses a particular HTML tag in an editor with context sensitive control, an associated dialogue box displays available attributes for the HTML tag. PageMill provides this functionality most easily through a floating dialogue box called the Attributes Inspector. Element attributes are available by clicking a button. Others like Navigator Gold and HoTMetaL have dialogue boxes that are available from a pop-up menu displayed by clicking the right mouse button.

Applications are growing larger and hungrier for memory. They are moving towards supporting, or in some cases requiring, 32-bit TCP/IP stacks. FrontPage and Navigator Gold are only available for Windows 95 or NT.

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Hotdog offers a 32-bit version as well as a 16-bit version. FrontPage also requires 16 MB of memory to run its Personal Web Server. Sausage Software also recommends 16 MB of memory to run its 32-bit version of Hotdog as well.

The PC platform is attracting more attention from these manufacturers than Macintosh or UNIX. Though HoTMetaL is available on the widest range of platforms including PCs, Macintoshes and UNIX workstations, version 3.0 is only available for PCs including Windows 3.xx, 95 and NT. Adobe PageMill is currently only available on the Macintosh. In August 1996, version 2.0 will also be available for Windows.

4. Individual product reviews

4.1. Hotdog Professional from Sausage Software. Version 2.0

Hotdog is an entrepreneur's dream story of how the Internet can turn an idea into a multi-million pound a year business. First introduced in a newsgroup in the Spring of 1995, Hotdog and other add-on products are forecast to generate almost £3.5 million of revenue for Sausage Software of Australia. Product sales and advertising were solely over the Internet until June 1996.

The company was also the first to announce a Java tool for users interested in animating pages without learning the Java programming language. The product, Egor, steps users through creating an animation of a graphic. The company strategy is to continue development of niche Java applets and application software tools called Snaglets.

Hotdog is not a WYSIWYG editor. HTML is displayed in text based form. Tags are displayed in a different colour from text, though, which makes viewing or troubleshooting easier. Tags may be inserted by clicking buttons, pull down menus or from an alphabetical listing which a user can display on top of the Web page he or she is authoring.

Hotdog is very customisable. A user has a great deal of flexibility and control in using the software. Another distinguishing feature of the editor is its file handling. Files are automatically saved, easily converted from PC to UNIX format, and opened in tandem with others automatically as a project. Probably one of the most welcome features was the ability to search and replace text through multiple files.

Hotdog costs £66. The Snaglets are available separately or bundled with new versions of Hotdog. Support is available only by e-mail. There is no user manual but there are tutorials on Hotdog as well as HTML built into the product and extensive online help that is context sensitive. It is available for Windows and Windows 95. There is no information about plans to release a Macintosh version.

If someone is comfortable working with text based HTML, this is a good tool to use. Another tool is required for handling images. A free 30 day evaluation copy is available to download from *http://www.sausage.com*.

4.2. HoTMetaL PRO from SoftQuad. Version 3.0

HoTMetaL grows out of SoftQuad's expertise with Standard Generalized Markup Language which became popular during the 1980s as a standard for electronic document exchange. HTML is based on SGML. Like Hotdog, HoTMetaL displays a text based HTML file. The tags are displayed as small graphics which make them easy to distinguish from other text. Tags are inserted from pull-down menus or tool bars. A real-time syntax checker will not allow someone to enter an invalid tag.

HoTMetaL includes many WYSIWYG features. Font sizes and paragraph styles are displayed as WYSIWYG. Hypertext links are displayed as they would look through a browser. The package provides over twenty template pages including a commercial home page, Press Release and Product Descriptions examples. Word processing documents are easily converted in this application.

Images are converted automatically as they are inserted into a page. Colours are easily changed via a dialogue box. The package now integrates its MetalWorks graphics editor which was previously available separately. It provides the user with many features to manipulate images. Image mapping is also easily accomplished by dragging a shape tool over the desired section of the image. Image backgrounds can be created as easily as well by clicking on the colour. Adjusting image colour and other formatting features are available. Image effects such as making 3D buttons are also available.

The company plans to maintain development of multimedia support including Java and Microsoft's ActiveX standard. Sample CGI scripts are available but they are not integrated with the software.

The software is available for Windows 3.xx, 95 and NT. Version 2.0 is available on a wide range of platforms: Windows, Macintosh, Sun/SPARC, DEC Alpha, IBM RS6000, Silicon Graphics and HP9000/700. The manual is comprehensive and includes a tutorial geared towards teaching someone basic HTML. Telephone support is available for 90 days.

HoTMetaL is a good choice for a company looking for a wide range of tools within one package. A freeware copy of version 2.0 is available to download from the company's Web site, *http://www.sq.com*. HoTMetaL has an extensive range of features and provides easy interfaces for handling images and creating tables and frames. SoftQuad is serious about promoting its product in the UK and has been exhibiting at Internet and computer exhibitions. Its syntax checker may become frustrating for experienced authors who want to insert their own tags and alter the file layout.

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4.3. PageMill from Adobe. Version 1.0

PageMill from Adobe was the first WYSIWYG Web authoring tool available. Produced by Adobe, it gives a user the creative power you would expect from an Adobe product while keeping technical aspects hidden.

First impression of this editor is its simple and minimal interface. This is due to one of its key features, a floating panel called the Attributes Inspector. This panel is context sensitive. It contains buttons to adjust page and text colours and styles. A third button allows users to view available attributes selected objects. For example, if a user selects a horizontal rule or bar across the page, the Attributes Inspector displays attributes available for the HTML tag **<HR>** such as adjusting the bar's width and height.

PageMill supports many intuitive drag and drop features. Elements can also be adjusted directly on the page by selecting them and then dragging a selection handle to adjust their size. Hypertext links are created by dragging a Page icon from the destination page to text on a source page.

Again, as one would expect from Abode, working with images and colours is made very easy. Colours for text and background can be chosen from a colour palette or RGB wheel instead of using hexadecimal combinations for shades of red, green and blue. Creating a transparent .GIF is as simple as a couple of mouse clicks. Converting image formats for display on a Web page takes even less mouse clicks. None, in fact: PageMill does it automatically.

PageMill also allows users to insert text and HTML tags by working in a Raw HTML mode. This gives users access to HTML tag extensions the product is not yet supporting.

PageMill costs £66. Version 1.0 is only available for Macintosh but version 2.0 is scheduled to be available in August for both Macintosh and Windows. Upgrades are free. The product includes a manual and tutorial. Telephone support is available for 90 days. SiteMill, its sister product, is available for site management for PageMill owners at £200.

PageMill is a powerful tool that is very simple to use. The ability to include text based HTML tags provides authors with flexibility and insurance for new HTML tag extensions. Moreover, it will probably become tightly integrated with Adobe's PageMaker for desktop publishing and Acrobat for creating and viewing .PDF files. Like SoftQuad, Adobe can typically be found at Internet and computer exhibitions. This is a good way to see a product demonstration. Its pricing for SiteMill, its site management tool, will come under pressure from Microsoft's FrontPage release. FrontPage includes a site management tool, Explorer, in the application.

4.4. FrontPage from Microsoft. Version 1.1 Beta

Initial impression of this product is that it looks very much like Microsoft Office Products. This may not sound so surprising except for the fact that Microsoft did not develop FrontPage. It was developed by Vermeer Technologies from Cambridge Massachusetts in 1995. Vermeer was purchased by Microsoft in 1996 for a rumoured £87 million, according to *Internet World* magazine. Representing another Cinderella Internet story, the company began with £17 million of capital earlier that year.

FrontPage is a WYSIWYG editor. A user can easily view the HTML source for a Web page but cannot modify it from within the software. The product supports standard Windows keyboard shortcuts. For example, typing CTRL+HOME will position the screen display at the top of the page. Moreover, Office documents can be accessed in an internal site but not from a pubic Web server.

Working with images is simple and rich with features. Images are converted automatically if they are in an incorrect format. Image maps are created by dragging a rectangle over the desired area the designer want to make a hotspot. Transparent backgrounds are created instantly by simply clicking a tool and then clicking the area of the image to become transparent. Interlacing can be added by clicking a checkbox in a dialogue box. Colours can be changed from a dialogue box using colour palettes.

Unlike other products, FrontPage has its own jargon. A Web site isn't a Web site in FrontPage, it is a *Web*. Anchors are called *bookmarks*. It introduces the concept of a *bot*, or *WebBOT* as it is trademarked. Bots are robots or routines which allow authors to add sophisticated functionality that would typically require programming. Features include searching through a Web Site and adding form registration results to an easy-to-read file. A unique feature of Front Page is its *Include bots* which allow authors to use the same copy of text or portions of pages throughout their Web sites. When the original is modified, all of the Web pages using the text are also updated automatically.

Using *bots* requires that FrontPage extensions or programming code must be stored on the author's Web server. This may be only an administrative issue for corporations maintaining their own Windows NT servers. Others, however, must rely on their Internet provider to install the extensions for them where their Web pages are hosted. Most providers in the UK use UNIX based servers, not Microsoft NT. A survey of the top ten UK Internet providers from *Internet* magazine's Top of the Pops listing revealed that no provider had immediate plans to implement the extensions but several were reviewing the possibility. Non-UNIX support and potential system conflicts were cited as issues.

(Note — an updated and more comprehensive survey of Internet providers will be made in November and distributed at the conference. FrontPage is just being released by Microsoft as this paper is being completed.)

FrontPage was released as a Microsoft product in June 1996. It is only available for Windows 95 and Windows NT with their 32-bit TCP/IP stacks. Software will be available at software retail stores and mail-order. A site management tool called Explorer and server software come bundled with the editor. It is worth noting this is a large application to install requiring 15 MB of disk space. Price is £99 or £73 for Office 95 users until March 1997. The tutorial with the product is informative and easy-to-follow. A manual will be available. Telephone support is

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available from Microsoft for 90 days.

FrontPage provides authors with a rich environment to create and manage Web pages. Microsoft users will find it easy to use and thus it will proliferate quickly through companies already standardised on Microsoft products. A handful of Internet providers will begin to implement the server extensions, viewing this as an opportunity to differentiate themselves amongst the 150 Internet providers in the UK today. Because FrontPage is a very extensive application which includes a personal Web server, it may prove challenging for a technical novice to install and maintain.

4.5. Navigator Gold from Netscape. Version 2.01 Gold

The Navigator Gold browser includes a WYSIWYG Web authoring tool. Web pages are created or modified by selecting editing commands from the File menu. Unlike other WYSIWYG editors, Navigator Gold allows users to modify the source text and HTML tags for a Web page. Like other authoring tools, toolbars are available to manipulate text and page styles. One contains a useful button for increasing and decreasing font size. A context sensitive dialogue box for modifying attributes for a selected element is available from a pop-up menu This is available by clicking the right mouse button.

Images can be inserted if they are .GIF or .JPEGs but not edited within the software. Navigator Gold does not provide an image editor but allows users to link to an application of their choice. Changing link and background colours is simple. A Document Properties dialogue box allows individual colour selections. It also provides authors with a selection of predesigned colour schemes where the background colour and link colours have been co-ordinated. The ability to preview the colours in the dialogue box itself is also helpful.

Netscape provides a rich source of templates and samples from its Web Site. These pages include Web page templates ranging from family to business pages, clip art, backgrounds and links to Java scripting resources. Template pages may be viewed from the site and then downloaded. Creating Web Services under the Help menu is also a good resource for information on using HTML tags, tools and design tips. Netscape also provides users with *wizards* to help them create Web pages. They are interactive pages that work from the Netscape Web site.

Navigator Gold is available from Netscape's Web site or through its resellers. The browser and Web authoring tool prices begin at £53 for a software license only. This does not include a manual or upgrades to new releases. Software with a manual costs £66. A year's subscription service to upgrades costs an additional £33. The manual assumes the user is a novice and provides an introduction to HTML and related terminology. The product is supported by Netscape's online support centre which provides assistance via a Help Request Form and telephone support for 90 days.

Navigator Gold can be an easy and inexpensive way for someone to start creating because it is included with the browser. However, other applications offer more functionality for working with images. This may be addressed in a pending upgrade. Accessing Help information and other supportive features from the Netscape Web site is cumbersome compared to other editors where supporting tutorials, wizards and Help information are included and run locally.

5. Conclusions

Conclusions are that editors will evolve into very feature rich applications that are easy for non-technical authors to use. Future tools will have a WYSIWYG interface which will mask the need for users to know HTML tags. For most Web pages authors this is good news. Experienced Webmasters will continue to prefer the ability to work with HTML tags. Simple, non-programming interfaces to functions such as searching and form registration will become more developed and easy for non-technical authors to use. Image handling is now mature enough in most products to satisfy commercial users but those seeking high design capabilities will require other image manipulation programs such as Adobe Photoshop.

Enhancements and new releases will continue to be introduced frequently. Independent producers will continue to support both Microsoft and Netscape HTML tag extensions. It is more difficult to determine what Microsoft and Netscape will continue to propose and support. Netscape enjoys an incumbent advantage being the first commercially available browser and capturing 83% of the market, according to the company.[3] Microsoft's FrontPage programming extensions only work with its NT operating system, not UNIX. For a company maintaining its own Web server, this may not be an issue. However, for companies and individuals who use Internet providers or hosting services for their Web sites, this may be a problem because most of these organisations use UNIX.

Throughout 1997, users may want to consider having a combination of tools available to produce and maintain their Web pages. For example, a WYSIWYG editor can be a useful way to begin designing and authoring a series of Web pages but simple maintenance may be faster throughout the next year via a text based HTML editor. Evaluation copies and freeware software represent a good way for users to introduce themselves to Web Authoring tools. Hotdog Professional is available for a 30 day evaluation and HoTMetaL version 2 is available for no charge.

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Notes

(1) Internet Statistics: Web Growth, Internet Growth. Andrew Gray.
http://www.mit.edu:8001/people/mkgray/net/web-growth-summary.html.
Commercial Web sites are shown as URLs with suffix .com.

(2) These products are priced in US dollars. Prices were converted to sterling using a rate of 1.5 dollars/pound for UK readers' convenience.

(3) Netscape [Client Products]. http://home.netscape.com/comprod/partner_central/products/client.